Trend Study 13B-9-00

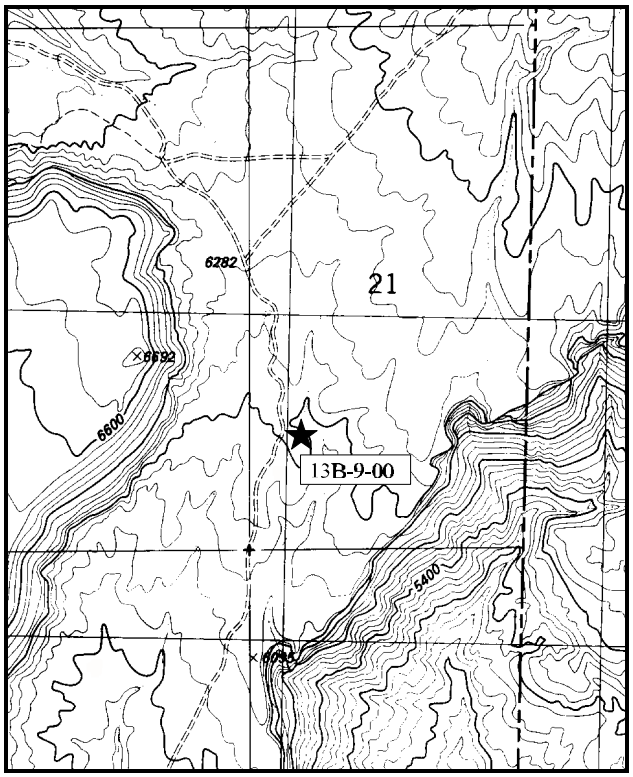
Study site name: Steamboat East Bench . Range type: Chained. Seeded P-J .

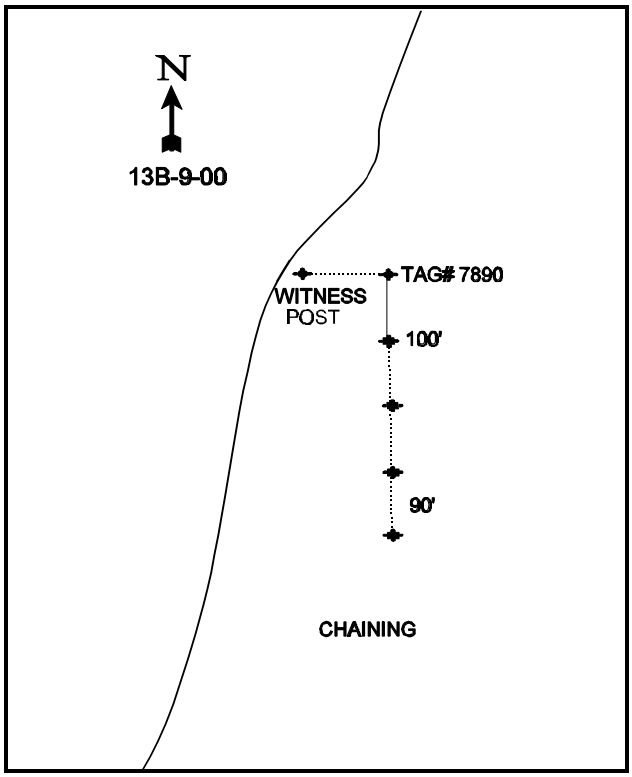
Compass bearing: frequency baseline 165°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From the Buckhorn Draw transect (13B-5). Continue southeast for 1.35 miles to the "Granary" intersection. Turn right and go 0.2 miles to a fork. Stay left. Go 1.55 miles and turn left. Go down this road 0.7 miles to Granite Creek. Cross the creek and proceed 4.8 miles to a fork. Stay left, then right at another fork which connects back to the main road, traveling 0.4 miles to a stock pond. Continue 0.15 miles to a fork with many branches (the right goes up on Steamboat Mesa). Stay on the same road (straight through the intersection and up a steep hill) for 0.5 miles to an old P-J chaining and a 2 ½ foot tall rebar witness post on the left, 6 feet off the road. The 0-foot end of the baseline is 100 feet east of the witness post and is marked by a rebar tagged #7890.





Map Name: Steamboat Mesa Diagrammatic Sketch

Township 23S , Range 26E , Section 21 UTM 4294656.310 N, 668020.850 E

DISCUSSION

Trend Study No. 13B-9 (34-9)

The Steamboat East Bench transect is located on a narrow bench (one-half mile wide) below Steamboat Mesa, bounded on the west by the sheer sandstone cliffs of Steamboat Mesa and on the east by deep canyons of the Dolores River. The northern part of the bench was included in the 1968 Steamboat Mesa allotment chaining. Currently, the area supports a moderately dense stand of pinyon-juniper and a variety of shrubs and herbaceous plants. The study site is on a moderately sloping ridge with a west-southwest exposure and an elevation of 6,200 feet. Drainage off the bench is to the south. A pellet group transect run parallel to the trend study baseline in 2000 estimates 17 deer days use/acre (42 ddu/ha) and 7 elk days use/acre (17 edu/ha).

The soil texture is a sandy clay loam with an effective rooting depth of about 12 inches. The soil temperature is moderately high (63° F). One limiting factor could be low amounts of phosphorus (2ppm) where 10ppm is considered minimal for normal plant growth and development. Erosion is evident in areas disturbed by roads. Overall the vegetative and litter cover provides adequate soil protection. Some slight pedestalling of some plants and large rocks was noted in the interspaces.

The site supports a variety of browse species. Preferred species include: Utah serviceberry, black sagebrush, Wyoming big sagebrush, true mountain mahogany and green ephedra. These species provided 22% of the browse cover in 1995 and 17% in 2000. Most of these key browse species occur in low to very low densities. For example, true mountain mahogany provides the most forage (contributes 16% and 12% of the total browse cover respectively for 1995 and 2000) even though it has a relatively low density of only 120 plants/acre in 2000. Mature plants are large, averaging over 6 feet in height making them partly unavailable to browsing. Use was mostly light in 1995 and 2000.

Black sagebrush has an estimated density of 440 plants/acre ('95 and '00), but only provides 4% of the total browse cover during the last two sampling dates. It showed moderate to heavy hedging in 1986 and 1995 but light use in 2000. It displays good vigor and low decadency. The proportion of young plants was relatively stable except for this last year with few to no seedlings present. Wyoming big sagebrush was also sampled at a low density of only 132 plants/acre in 1986 declining to only 40 in 2000. The scattered Utah serviceberry was not encountered in the shrub density strips in 2000. Some surrounding mature plants measured for height/crown are large averaging 9 feet tall with a crown measurement of 14 feet. Pinyon and juniper trees dominate the site. They currently ('00) provide 76% of the browse cover with a density of 274 pinyon trees/acre and 63 Utah juniper trees/acre using point-center quarter data.

On average, grasses contribute 24% of the total vegetative cover on this site. It is an important component in stabilizing the soil. Cheatgrass was the most abundant grass in 1995, contributing almost half of the total grass cover. Currently ('00) it only makes up 1% of the grass cover due to the dry season. Crested wheatgrass was second in abundance in 1995. With the decrease in cheatgrass competition, it has now increased from 31% to 66% of the grass cover. Both Indian ricegrass and bottlebrush squirreltail have continued to decreased in abundance. Forbs provide little forage or ground cover with most occurring as low growing life forms. Stemless goldenweed and rock goldenrod are the most abundant forbs on the site. Other common forbs include: hairy goldaster, tumble mustard, and Hood's phlox.

1986 APPARENT TREND ASSESSMENT

Currently, browse density and diversity is promising on this winter range. However, many of the more palatable shrubs have been heavily hedged and may be receiving too much pressure to continue in the community. The most obvious downward trend indicator is the gradual increase of the pinyon-juniper trees. Many of the pinyon

are suffering from an unidentified disease (or possibly an herbicide), therefore their increase is difficult to predict and will be interesting to follow the changes taking place. Other trend parameters such as form, vigor, and age class distribution for key species appear stable. The overall soil trend also appears stable.

1995 TREND ASSESSMENT

Bare ground has decreased since 1986 with only slight sign of erosion. Vegetation and litter offer good protection and contribute to a stable soil trend. The herbaceous understory is comprised primarily of grasses. This includes two annual and six perennial species, of which, cover is almost equally distributed (annuals 47% vs 53% perennial). Herbaceous understory is stable, although a better composition is desired. The pinyon and juniper extensive root system may be affecting the understory species by being more competitive for moisture. There are several different browse species, of which, broom snakeweed is the most abundant. This population does not appear to be expanding at this time, but are becoming slightly more robust. Both sagebrush populations show a decrease in percent decadency with a few plants being heavily hedged. Almost 1 out of 4 black sagebrush and 1 out of 3 Wyoming big sagebrush are dead at this time. This is most likely due to extended drought conditions, thinning out the sagebrush populations and competition with the pinyon and juniper trees. Although these are relatively high ratio's, there is still a comparatively high percentage of young plants in the population. This combined with light use of other palatable browse species, contributes to a stable to slightly upward browse trend.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3) but poor composition with too many annuals

2000 TREND ASSESSMENT

Percent bare soil has increased slightly since 1995 with only almost no sign of erosion. There has been increases in both vegetation and litter cover. The ratio of bare soil to protective cover has increased from 1:2.1 to 1:2.6 which provides good protection and contributes to a stable soil trend. The herbaceous understory is comprised primarily of grasses. This includes mostly perennial species (crested wheatgrass, purple three-awn, galleta, and Indian ricegrass) which makes up more than 98% of the grass cover. At this time annuals only make up 1% of the grass cover. Herbaceous understory is stable even though there was a slight decrease in sum of nested frequency for perennial grasses. However, there is a much improved composition of mostly perennials at this time. The pinyon and juniper extensive root system is affecting the understory species by being more competitive for moisture and sunlight. This is especially true for this last year of extreme drought. There are several different browse species, of which, broom snakeweed is still the most abundant browse. This population does not appear to be expanding at this time as its density is down slightly from 1995. Both sagebrush populations continue to show a decrease in percent decadency (0% in 2000). Black sagebrush and Wyoming big sagebrush are a minor component as together they only make up 5% of the browse cover. With a pinyon-juniper density of 337 trees/acre, the preferred browse will never be an important winter forage component until the competitive tree overstory is thinned. Seventy-six percent of the total browse cover comes from pinyon and juniper trees making it difficult for any browse species to do well in this community. Browse trend is slightly down.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - stable with a great reduction of annuals (3)

HERBACEOUS TRENDS --
Herd unit 13B, Study no: 9

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'86	'95	'00	'86	'95	'00	'95	'00
G	Agropyron cristatum	a63	b106	96	26	38	38	2.00	5.21
G	Aristida purpurea	a-	b16	b13	-	7	5	.40	.84
G	Bromus tectorum (a)	-	b243	a6	-	79	4	3.00	.09
G	Hilaria jamesii	a-	b14	b18	-	4	6	.48	1.01
G	Oryzopsis hymenoides	b29	a17	a11	21	9	8	.46	.68
G	Poa fendleriana	b15	b15	a-	7	7	-	.03	-
G	Poa secunda	-	-	2	-	-	1	-	.00
G	Sitanion hystrix	b62	a7	a4	29	3	2	.04	.04
G	Vulpia octoflora (a)	-	4	-	-	2	-	.01	-
Total for Annual Grasses		0	247	6	0	81	4	3.01	0.09
Total for Perennial Grasses		169	175	144	83	68	60	3.43	7.80
Total for Grasses		169	422	150	83	149	64	6.45	7.89
F	Arabis drummondi	a-	b9	a-	-	4	-	.02	-
F	Astragalus mollissimus	b15	b10	a-	7	4	-	.05	-
F	Astragalus spp.	-	4	-	-	2	-	.01	-
F	Carduus nutans (a)	-	b5	a-	-	3	-	.01	-
F	Cryptantha spp.	a-	b23	a-	-	13	-	.06	-
F	Cymopterus spp.	a-	b16	a-	-	8	-	.04	-
F	Draba nemorosa (a)	-	4	-	-	2	-	.01	-
F	Erodium cicutarium (a)	-	b18	a5	-	8	2	.04	.01
F	Erigeron pumilus	2	-	-	2	-	-	-	-
F	Euphorbia spp.	c13	b4	a-	9	3	-	.01	-
F	Gilia hutchinifolia (a)	-	b28	a-	-	16	-	.08	-
F	Haplopappus acaulis	b70	a31	a29	31	15	14	.39	.24
F	Heterotheca villosa	a-	b12	ab4	-	4	2	.16	.15
F	Hymenoxys acaulis	a-	a-	b5	-	-	3	-	.06
F	Lappula occidentalis (a)	-	2	-	-	1	-	.00	-
F	Lactuca serriola	-	1	-	-	1	-	.00	-
F	Lesquerella ludoviciana	b10	a-	a-	4	-	-	-	-
F	Lithospermum spp.	-	2	-	-	1	-	.00	-
F	Machaeranthera grindelioides	b10	a-	a-	4	-	-	-	-
F	Medicago sativa	-	-	-	-	-	-	.01	-
F	Penstemon carnosus	ab3	b5	a-	1	3	-	.04	-
F	Petradoria pumila	b28	a14	ab16	14	6	6	.47	1.12
F	Phlox hoodii	b25	a11	a10	10	4	5	.05	.07
F	Physaria spp.	1	-	-	1	-	-	-	-

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'86	'95	'00	'86	'95	'00	'95	'00
F	Sisymbrium altissimum (a)	$_{a}$1	$_{b}$13	$_{a}$-	1	6	-	.03	-
F	Silene spp.	$_{a}$-	$_{b}$11	$_{a}$-	-	4	-	.02	-
F	Streptanthus cordatus	$_{a}$-	$_{b}$7	$_{a}$-	-	4	-	.02	-
F	Townsendia incana	3	-	-	1	-	-	-	-
F	Tragopogon dubius	$_{b}$17	$_{a}$3	$_{a}$-	7	1	-	.00	-
Total for Annual Forbs		1	70	5	1	36	2	0.17	0.00
Total for Perennial Forbs		197	163	64	91	77	30	1.39	1.66
Total for Forbs		198	233	69	92	113	32	1.57	1.67

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 13B, Study no: 9

Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier utahensis	1	0	-	-
B	Artemisia nova	13	13	.85	1.00
B	Artemisia tridentata wyomingensis	5	1	.18	.15
B	Cercocarpus montanus	10	5	3.25	2.76
B	Ephedra viridis	1	1	.15	.15
B	Gutierrezia sarothrae	30	32	.71	1.28
B	Juniperus osteosperma	0	7	2.95	5.73
B	Opuntia spp.	1	2	-	.03
B	Pinus edulis	0	16	11.50	12.08
B	Sclerocactus	1	5	.00	.06
B	Symphoricarpos oreophilus	1	1	.15	.15
B	Yucca harrimaniae	1	2	.00	.00
Total for Browse		64	85	19.75	23.42

CANOPY COVER --
Herd unit 13B, Study no: 9

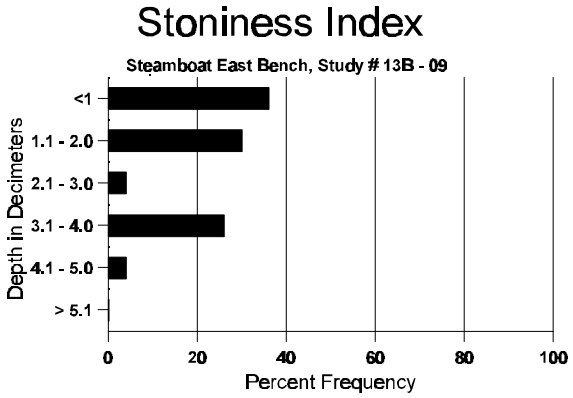
Species	Percent Cover '00
Juniperus osteosperma	9
Pinus edulis	12

BASIC COVER --
Herd unit 13B, Study no: 9

Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'86	'95	'00
Vegetation	316	216	2.00	27.71	32.60
Rock	236	182	7.00	15.66	11.94
Pavement	65	176	1.75	.52	6.53
Litter	382	356	55.50	41.47	50.87
Cryptogams	62	60	1.00	.80	1.73
Bare Ground	264	239	32.75	26.00	28.85

SOIL ANALYSIS DATA --
Herd Unit 13B, Study # 9, Study Name: Steamboat East Bench

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
11.72	63.4 (13.15)	7.3	57.6	17.1	25.2	2.0	2.0	80.0	0.6



PELLET GROUP FREQUENCY --
Herd unit 13B, Study no: 9

Type	Quadrat Frequency	
	'95	'00
Rabbit	17	15
Elk	9	-
Deer	6	10
Cattle	-	1

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
00	00
418	N/A
11	7 (19)
218	17 (42)
-	-

BROWSE CHARACTERISTICS --
Herd unit 13B, Study no: 9

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	119	169	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	109	167	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	20		-
	'00	0		-

Artemisia nova																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	5	6	-	-	-	-	-	-	-	11	-	-	-	366			11
	95	2	4	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	8	4	1	-	-	-	-	-	-	13	-	-	-	433	8	11	13
	95	3	8	4	-	-	-	-	-	-	15	-	-	-	300	10	18	15
	00	20	1	-	-	-	-	-	-	-	21	-	-	-	420	7	17	21
D	86	3	8	1	-	-	-	-	-	-	10	-	-	2	400			12
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	180			9

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	50%	06%	06%	-63%
'95	55%	18%	00%	+ 0%
'00	05%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	1199	Dec:	33%
	'95	440		5%
	'00	440		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
Y	86	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	1	-	-	-	-	-	-	-	1	-	-	-	33	5	7	1
	95	1	-	2	-	-	-	-	-	-	3	-	-	-	60	14	22	3
	00	-	-	2	-	-	-	-	-	-	2	-	-	-	40	9	17	2
D	86	-	1	1	-	-	-	-	-	-	1	-	-	1	66			2
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	50%	25%	25%	- 9%
'95	00%	33%	00%	-67%
'00	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'86	132	Dec:		50%
'95	120			33%
'00	40			0%

Cercocarpus montanus																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	5	-	-	1	-	-	-	-	-	6	-	-	-	120			6
	00	-	-	-	1	-	-	1	-	-	2	-	-	-	40			2
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	2	1	-	2	-	-	-	-	-	5	-	-	-	100	68	94	5
	00	-	-	-	-	1	-	2	-	-	3	-	-	-	60	74	92	3
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	08%	00%	08%	-50%
'00	17%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'86	0	Dec:	0%
'95	240		8%
'00	120		17%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus hololeucus																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	43	56	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	0		-
	'00	0		-

Ephedra viridis																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	34	35	1
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	33	57	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	+ 0%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	20		-
	'00	20		-

Gutierrezia sarothrae																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	13	-	-	-	-	-	-	-	-	13	-	-	-	260			13
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	7	-	-	-	-	-	-	-	-	7	-	-	-	233			7
	95	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	86	39	-	-	-	-	-	-	-	-	39	-	-	-	1300	8	10	39
	95	74	-	-	-	-	-	-	-	-	74	-	-	-	1480	9	13	74
	00	43	-	-	1	-	-	-	-	-	41	-	3	-	880	6	11	44
D	86	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	95	3	-	-	-	-	-	-	-	-	2	-	-	1	60			3
	00	19	-	-	-	-	-	-	-	-	3	-	1	15	380			19
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	560			28

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	+ 7%
'95	00%	00%	01%	-23%
'00	00%	00%	29%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	1566	Dec:	2%
	'95	1680		4%
	'00	1300		29%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus osteosperma																		
S	86	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	2	-	-	1	-	-	-	3	-	6	-	-	-	120	-	-	6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'86	00%	00%	00%
'95	00%	00%	00%
'00	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	0		-
	'00	140		-

Opuntia spp.																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	3	11	1
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	3	12	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	20		-
	'00	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pinus edulis																		
S	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	86	3	-	-	-	-	-	-	-	-	3	-	-	-	100			3
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	5	-	-	7	-	-	-	-	-	12	-	-	-	240			12
M	86	6	-	-	-	-	-	-	-	-	3	3	-	-	200	81	39	6
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	3	-	-	-	-	-	5	3	-	11	-	-	-	220	-	-	11
D	86	1	-	-	-	-	-	-	-	-	-	-	-	1	33			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	10%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	333	Dec:	10%
	'95	0		0%
	'00	460		0%

Sclerocactus																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	11	8	1
	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160	5	7	8

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	+75%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	40		-
	'00	160		-

Symphoricarpos oreophilus																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	1	-	-	-	-	-	1	-	-	-	20	30	57	1
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	00%	
'95	00%	00%	00%	+ 0%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	0	Dec:	-
	'95	20		-
	'00	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Yucca harrimaniae																		
Y	86	7	-	-	-	-	-	-	-	-	7	-	-	-	233			7
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	86	17	-	-	-	-	-	-	-	-	17	-	-	-	566	12	16	17
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20	4	2	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	12	13	0
D	86	1	-	-	-	-	-	-	-	-	-	-	-	1	33			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'86	00%	00%	04%	-98%
'95	00%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'86	832	Dec:	4%
	'95	20		0%
	'00	40		0%